

Analysis of Two Different Span Skew Slab Bridge using ETAB Software by Finite Element Method

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ABSTRACT

- Skewed bridges are commonly used to cross roadways, waterways, or railways that are not perpendicular to the bridge at the intersection. Skewed bridges are characterized by their skew angle, defined as the angle between a line normal to the centerline of the bridge.
- In this Project work, Study the behaviour of skew slab bridges in context of lateral load distribution, skew angle effect and bending moment/ coefficient and deflection determination by ETAB Software using finite element method.

How to cite this paper: MD Dilnawaz Alam | Prof. Imran Ahmad Faizy "Analysis of Two Different Span Skew Slab Bridge using ETAB Software by Finite Element Method" Published in International Journal of Trend in Scientific Research and Development (ijtsrd), ISSN: 2456-6470, Volume-7 | Issue-3, June 2023, pp.112-116, URL: www.ijtsrd.com/papers/ijtsrd56327.pdf



IJTSRD56327

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Table no 1 Geometric Properties of Skew Slab Bridge

S. No	Skew Slab Bridge	span length in meter	skew angle
1	Case I	16	15°
2	Case II	20	15°

Step-1 Preparation of geometry of tower in ETABS

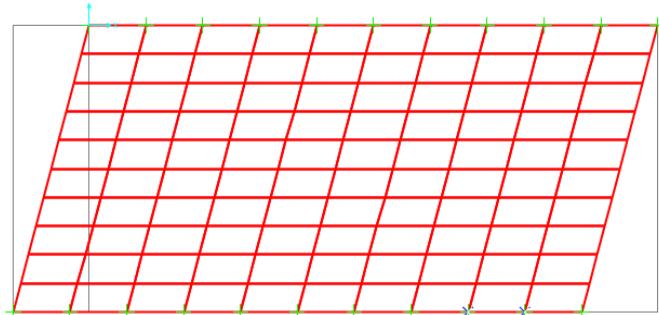


Fig 1 Top View slab with 16m span length at 15° skew angle

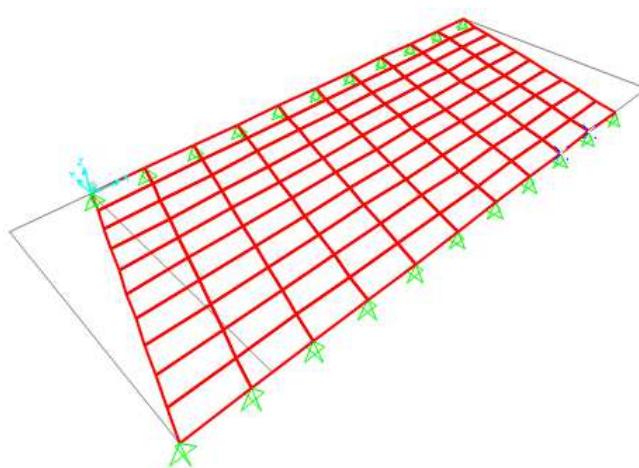


Fig 2 3D View slab with 16m span length at 15° skew angle

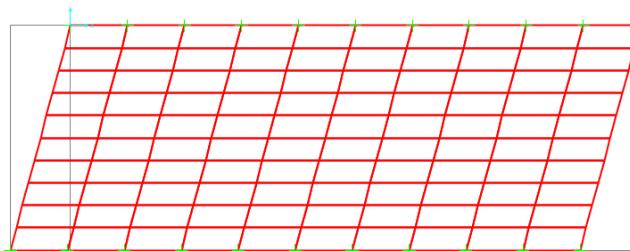


Fig 3 Top View slab with 20m span length at 15° skew angle

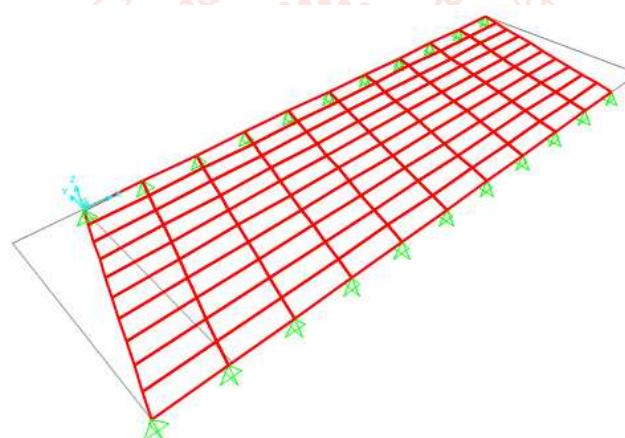


Fig 4 3D View slab with 20m span length at 15° skew angle

Results

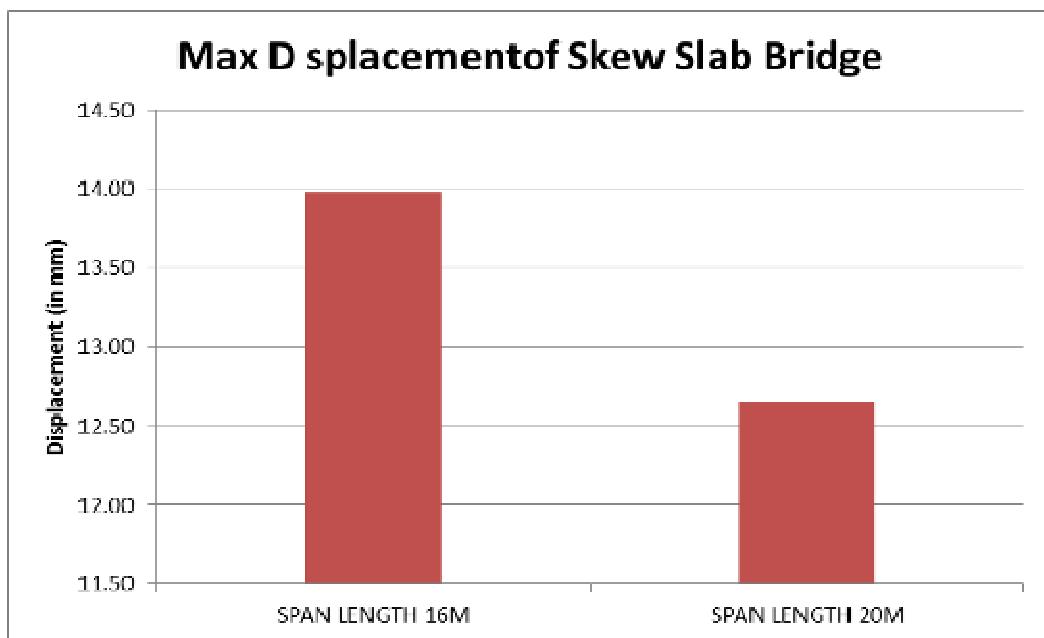


Figure 5 Maximum Displacement Graph

Maximum Stress in X Direction (in N/Sq mm) of Skew Slab Bridge)

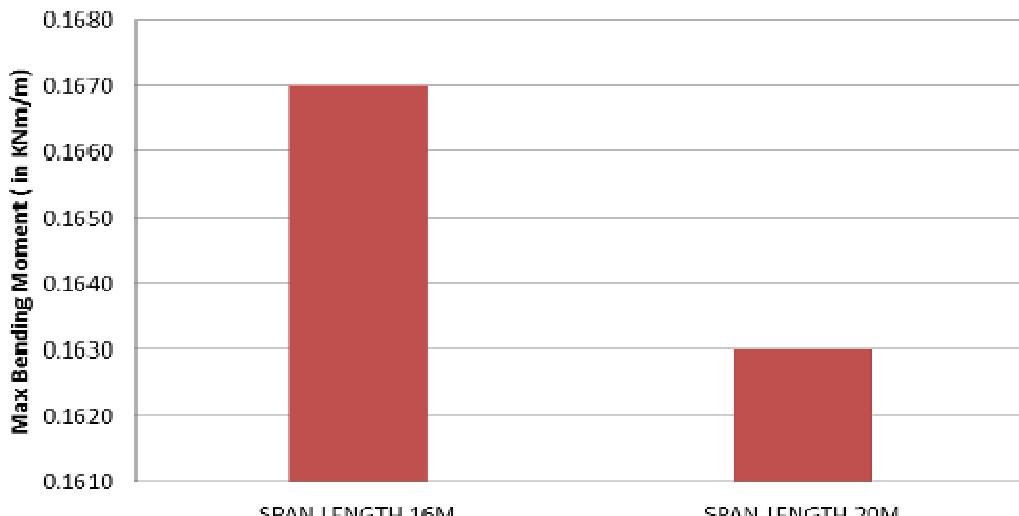


Figure 6 Maximum Stress Qx Graph

Maximum Stress in Y Direction (in N/Sq mm) of Skew Slab Bridge)

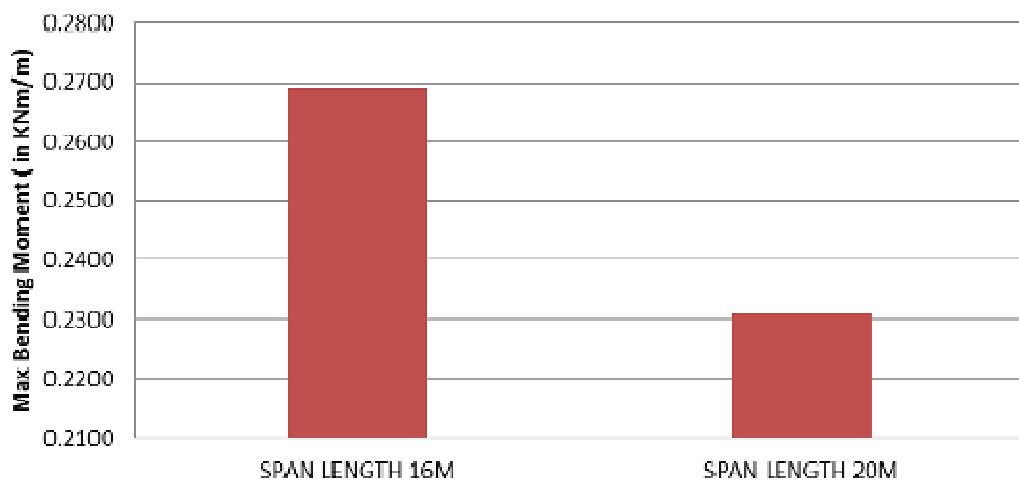


Figure 7 Maximum Stress Qy Graph

Max Bending Moment (Mx)

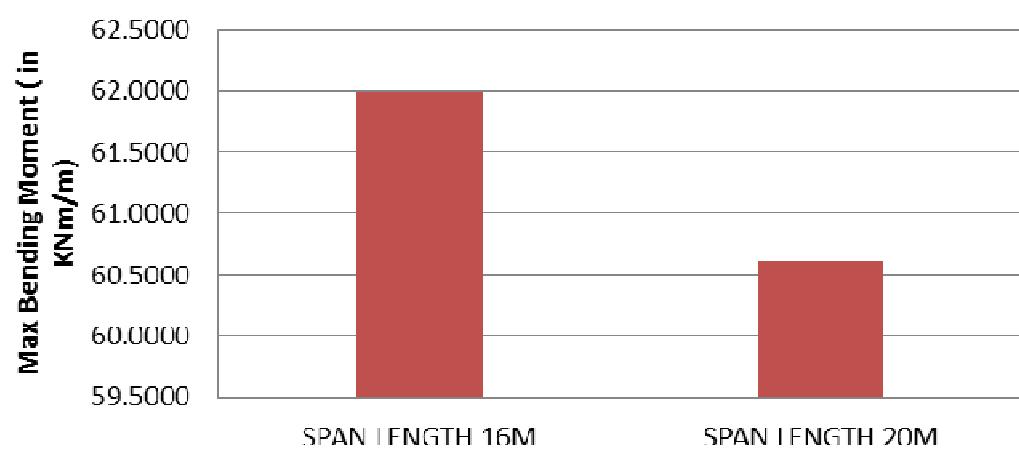
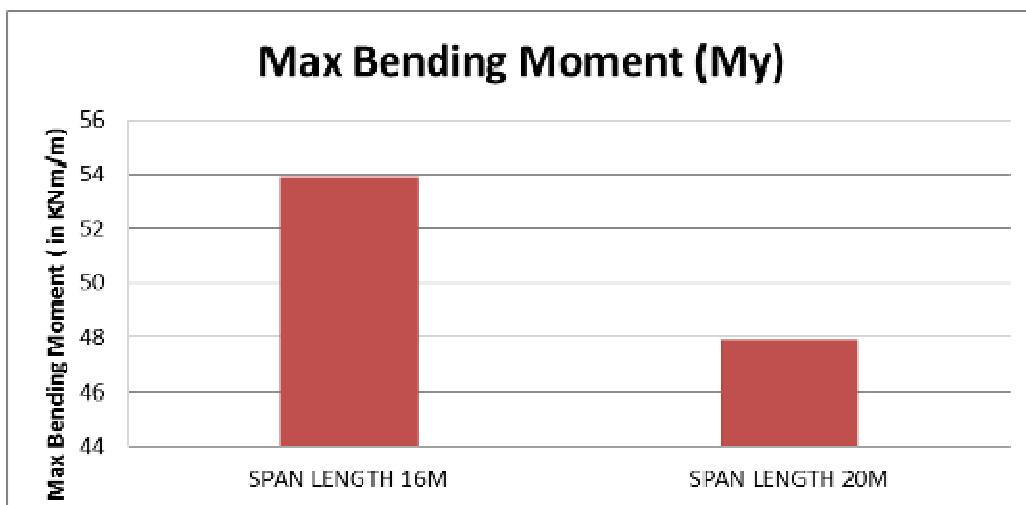
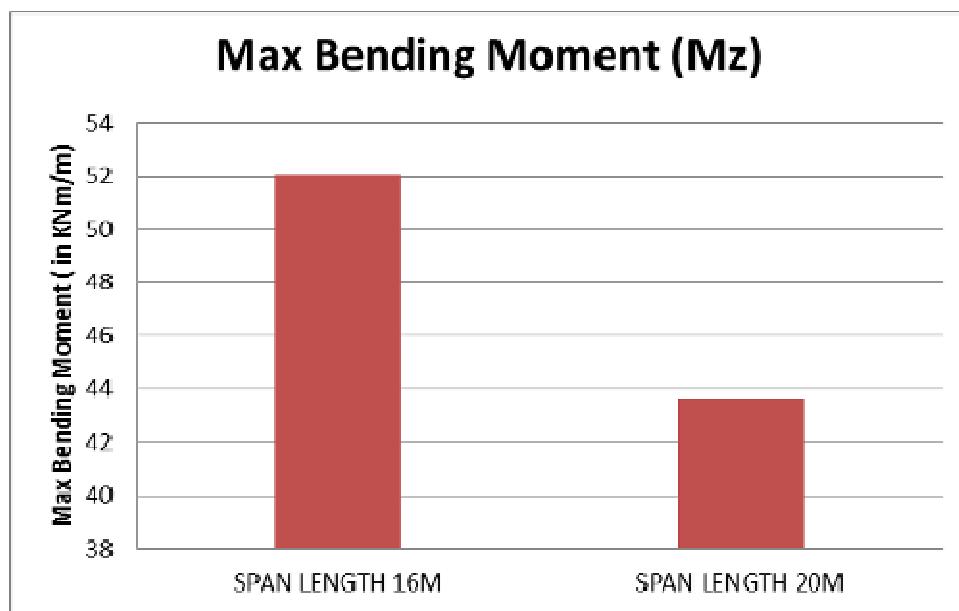


Figure 8 Maximum Bending Moment Mx Graph

**Figure 9 Maximum Bending Moment My Graph****Figure 10 Maximum Bending Moment Mz Graph**

CONCLUSION

When span is increases than Max Bending Moment in X Direction (in KNm/m) of Skew Slab Bridge is decreases from 61.9940 to 60.6140 and Max Bending Moment in Y Direction (in KNm/m) of Skew Slab Bridge Decreases 53.916 to 47.890 and Max Bending Moment in Z Direction (in KNm/m) of Skew Slab Bridge Decreases 52.07 to 43.6748. Hence higher span of bridge is considered.

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